

Plate Tectonics ▪ *Guided Reading and Study*

Convection and the Mantle

This section describes how heat is transferred from Earth's hot core through the mantle.

Use Target Reading Skills

As you read about heat transfer, complete the outline to show the relationships among the headings.

Convection and the Mantle
I. _____
A. _____
B. Conduction
C. _____
II. Convection Currents
III. _____

Types of Heat Transfer

1. The movement of energy from a warmer object to a cooler object is called _____.
2. List the three types of heat transfer.
 a. _____ b. _____ c. _____
3. What is radiation? _____

4. What are two forms of radiation? _____

5. What is conduction? _____

6. What is an example of conduction? _____

Plate Tectonics ▪ *Guided Reading and Study*

Convection and the Mantle *(continued)*

7. What is convection? _____

8. Heat transfer by convection is caused by differences of _____
and density within a fluid.
9. A measure of how much mass there is in a volume of a substance is
_____.
10. Circle the letter of the sentence that describes what happens to a fluid
when its temperature increases.
- a. Its particles occupy less space.
 - b. Its density decreases.
 - c. Its particles move more slowly.
 - d. Its particles settle together more closely.

Convection Currents

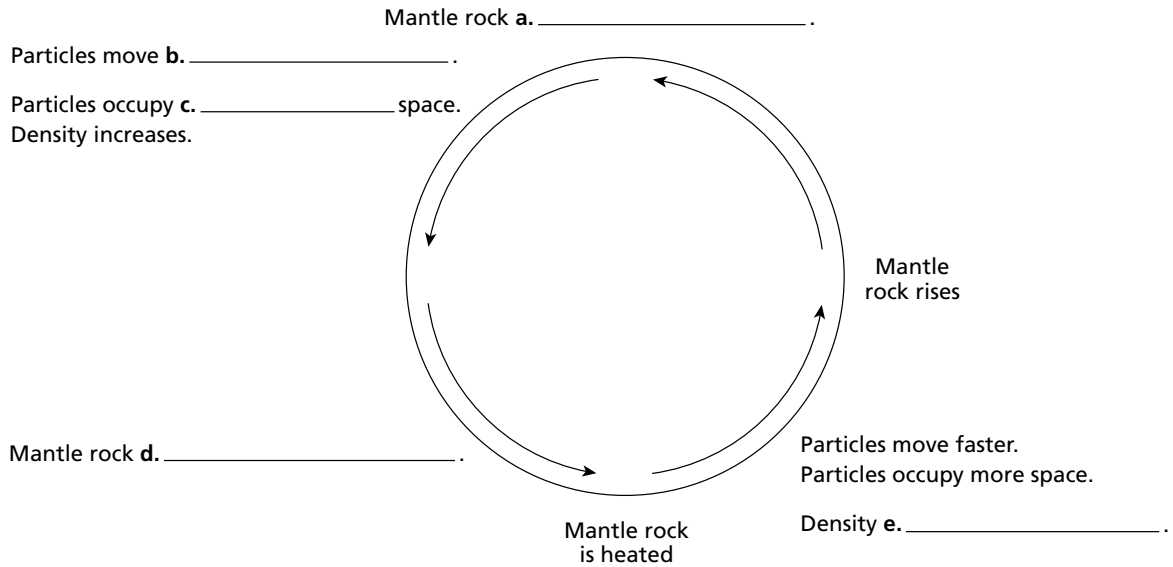
11. What three factors set convection currents in motion? _____

12. What happens to convection currents when the liquid or gas is no longer
heated? _____

Plate Tectonics ▪ *Guided Reading and Study*

Convection Currents in Earth

13. Complete the graphic organizer to show the relationships among heat, movement, and density in mantle rock.



- f. Why is this relationship shown as a cycle? _____
- g. In the cycle shown, where would mantle rock be the densest? _____
14. Is the following sentence true or false? The heat source for the convection currents in the mantle is the sun. _____